

Environmental Project Reference Materials

Environmental Science Level 1

Spring 2008

Monthly Project Reports

About 7 days after we go out to the environmental sites, your group will pass in to me the materials listed below. It is important that all the group members work together to be sure that the materials are complete.

How do we get graded? Each of the following components (1 through 5) will determine your group grade. Your group will keep a notebook that will stay in class. On the day that it is due (this will be announced in class and posted on ed-line) all required materials should be in the notebook and organized so that it is easy for the reader to follow.

What should I (or my group) do if we don't understand the expectations of this project?

You should come see me as a group or individual. I will gladly explain to you and/or help you with your questions.

1. Site Description of the site for the month we go out. (20 points)
The visual description should be in paragraph form. The length should be about a page to a page and a half. Use the question guide in this packet to be sure you have enough observations to make a useful description.
2. Map of the Site (20 points)
For each month, the group must prepare a map of the site showing the major landmarks, the location of water, where the test sites are, where you stood to do the visual description, where the various plants are located, any animal tracks you saw, etc.
3. Weather Data (10 points)
Your group will need to record the weather for the two days before we go out and the day we visit the sites. The weather data includes: high temperature for the day, low temperature for the day, the direction from which the wind is coming, its speed, any precipitation over the past 24 hours, how much of the sky is cloudy, and any unusual weather over the past week, such as any major storms or if the weather has been very dry.
4. Test Data (20 points)
 - a. Your group will be given a data chart where you will record the test data you have been collecting at the site. This data chart MUST be made available to all the members in the group. If the chart is lost, then all the data you have collected will be missing! Make sure you have copies of the data in a safe place.
 - b. Please include a brief one paragraph statement regarding data collection. Did you encounter any problems testing? Was anyone absent? Did you have any equipment failures?
5. Group Project: (5 points)
 - a. Is there a cover page including all group members names, and the name of the site?
 - b. Environmental Project Site Visit Duties (this form should be completed and included in each month report.

Environmental Project Site Visit Duties

Each of the members of the group will perform the duties listed below. Each time we go out, you will have an opportunity to be one of the members listed below. Each member is expected to help any other member that may need it. This is a group project; you and your partners will be depending on each other!

1. **Site Manager Data Recorder** _____
 - a. Get the test kits and does an inventory of all materials
 - b. Cleans the kit at the end of the visit and makes sure all materials are present
 - c. Makes sure all work is done at the sites
 - d. Fills in for a member if someone is absent
2. **Weather Recorder** _____
 - a. Gets weather data for the 2 days before and the day we go out - online
 - b. Records daily temperature information at the weather station in school between classes.
 - c. Does the air temp, water temp and soil temp readings at the site
 - d. Records the sky conditions and cloud cover over the site
3. **Chemist** _____
 - a. Does the DCO₂, DO₂, and the pH tests
4. **Chemistry Assistant** _____
 - a. Assist in chemistry testing
5. **Site Description** _____
 - a. Writes the visual description draft for the group to review
 - b. Types the final copy of the visual description
6. **Map Maker** _____
 - a. Produces a map of the site for each time the group goes out
 - b. Helps the narrative recorder with the visual description
 - c. Does the soil permeability test

Site Description

Some Questions to Consider

The following is a set of questions you might consider as you write your written site description. You are not expected to answer all of them and you come-up with many other ones on your own. This is just a list to get you started.

Abiotic factors:

What are the characteristics of the land at your site?
How much of a slope is there? Is the site flat, hilly, rolling?
What is the main source of water at your site?
Has the water level changed?
Are there any prominent land features such as boulders, ledges, holes, bodies of water, stumps, etc? Have they changed?
What types of erosion are occurring at the site? What is causing the erosion? Is it changing?
Describe the weather - amount sunlight, cloud cover, wind, and humidity
What is the ground cover like? What kind of materials are on the ground? What are the characteristics of the soil? Color? Moisture? Size of particles?
What does your site smell like?
What are the sounds that you can hear as you stand in your site?

Biotic factors:

Do you observe any animal life? What kind? Describe what you see.
What evidence do you see of animals?
What types of insect life are present?
What are the dominant types of plants in the area? Trees? Grasses? What specific kinds? What are the sizes, colors, and shapes of the plants in the area?
Are particular plants found in particular parts of the study site?
To what extent do plants affect the amount of sunlight reaching ground?
How common is each type of plant that you see? (abundant? frequent? occasional? rare?) .
Are there any decomposers present? What kind and what are their effects?

Human factors:

In what ways have humans impacted this area?
In what ways are you impacting this area?

Environmental Project

Kit Contents

- 2 pairs of goggles
- 1 thermometer
- 1 cork
- 1 plastic cup
- 1 hollow can
- pH paper
- DO Kit with
 - Titrator/syringe
 - Manganous sulfate
 - Potassium iodide
 - Start solution
 - Sulfuric acid
 - Collection bottle
 - Titrator bottle
 - Sodium Thiosulfate
- DCO₂ Kit with
 - Titrator
 - Titration bottle
 - Phenolphthalein
 - Reagent B
- Clipboard with
 - Instructions for DO and DCO₂ tests
 - Safety information and map
- Timer
- Meter stick

Date:

SITE MAP 9th GRADE ENVIRONMENTAL PROJECT

SITE: _____ BLOCK: _____ SPRING/FALL YEAR: _____
(circle)

scale: 2.5 inches = 2 meters

KEY:

Weather Data Recording Sheet

Site _____ Day of Visit _____

Today's Weather: ____ Clear/Sunny ____ Overcast ____ Rain (light) ____ Rain (heavy)
____ Snow/Sleet

Temperature (High) (°C): _____ Temperature (Low) (°C): _____

Precipitation for the day (cm) _____

Time	Actual Time Recorded	Temp	Wind Speed	Wind Direction	Relative Humidity
7:30 am					
9:15 am					
10:40 am					
12:40 pm					
2:05 pm					

Date: _____

Yesterday's Weather: ____ Clear/Sunny ____ Overcast ____ Rain (light) ____ Rain (heavy)
____ Snow/Sleet

Wind Speed: ____ kph Wind Direction: N NE E SE S SW W NW

Temperature (High) (°C): _____ Temperature (Low) (°C): _____

Precipitation (cm) _____

Date: _____

Weather Two Days ago: ____ Clear/Sunny ____ Overcast ____ Rain (light) ____ Rain (heavy)
____ Snow/Sleet

Wind Speed: ____ kph Wind Direction: N NE E SE S SW W NW

Temperature (High) (°C): _____ Temperature (Low) (°C): _____

Precipitation (cm) _____

Any unusual weather in the past week:

Data Recording Sheet

Level 2

Environmental Project

Block: _____

Site: _____

Year: _____

	1 st Visit	2 nd Visit	3 rd Visit	4 th Visit	5 th Visit
Date					
Time (am/pm)					
Water Temperature (°C)					
Water Depth (cm)					
Sediment Depth (cm)					
Flow Velocity (cm/s)					
pH					
Dissolved O2 (ppm)					
Dissolved CO2 (ppm)					
Soil Temp (°C) Surface					
Soil Temp (°C) 5cm deep					
Air Temp (°C) Sun					
Air Temp (°C) Shade					
% sun on water					
% ice on water					
Ice thickness (cm)					
Water Clarity (1-4)					
Permeability Test (min)					

Make sure you have a copy of all this information for each month we go out. Lost information is useless for the project.

Please include a brief description of sampling conditions, your scale for water clarity, observations, and problems you may have encountered.

Peer Evaluation

Working in a group can be both rewarding and difficult. With that in mind, remember that the effort you put in, will affect other students. No student should feel a need to carry other students, and no student should expect a free ride.

Your goal is to work as a group and earn the best grade you can.

Below is an explanation of how peer evaluation works:

Your group will be allotted ten points for each group member. You will need to divide the total points fairly among the member of your group (if you have six members in your group, you must divide the 60 points up among your group). You must assign all points among the members of your group. When assessing yourself and other member of the group, if you allot a member less than ten points for their work and contribution to the project, other members of your group must be allotted those extra points (for example, if you allot one person 8 points, then your group could look like this 8, 10, 10, 12, 10, 10 or 8, 11, 11, 10, 10, 10).

If you award a member of your group more or less than 10 points you **must** write a comment. In this comment explain why this person earned more points or why they deserve less.

The average of all peer evaluation will be calculated for each individual group member. That number will be divided by 10 and then multiplied by the group project grade; from this you will attain your actual individual grade.

For example:

The average peer evaluation grade for Marc was 10 points.

$$10/10 = 1.0$$

The group project grade for Marc's group was a 95%.

$$1.0 \times 95\% = 95$$

Marc's grade is a 95%

Melissa was also in Marc's group.

The average peer evaluation grade for Melissa was 8.5 points.

$$8.5/10 = 0.85$$

$$0.85 \times 95 = 80.75$$

Melissa's actual grade was an 80.75%

Site_____ Block_____ Month_____

Peer Evaluation Form

Group Member:_____ Grade:_____
Comments:

Group Member:_____ Grade:_____
Comments:

Group Member:_____ Grade:_____
Comments:

Group Member:_____ Grade:_____
Comments:

Group Member:_____ Grade:_____
Comments:

Group Member:_____ Grade:_____
Comments:

Group Member:_____ Grade:_____
Comments: